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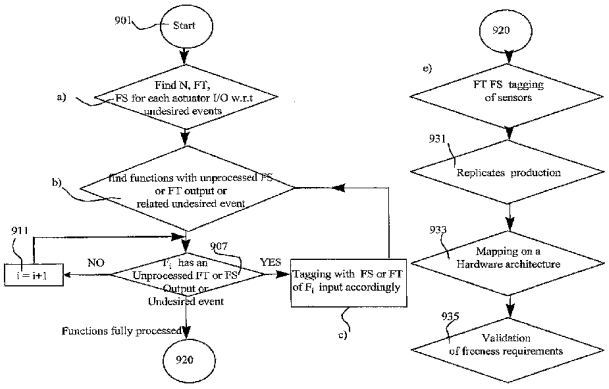
(54) Title: DESIGN OF SAFETY CRITICAL SYSTEMS



(57) Abstract: A method is disclosed of producing a system architecture comprising a plurality of electrical devices connected to each other, said system preferably comprising a fault tolerant system, the method including: a) identifying a set of undesirable events and ascribing to each of said undesirable events an indicator of their severity; b) associating where possible each said undesirable event with one or more actuators of said system architecture; c) developing a functional specification of an initial architecture proposed for implementation of said system architecture, said functional specification of said initial architecture including datafiow for and between components thereof, said components comprising for example sensors or actuators; d) refining on said functional specification the fault tolerance requirements associated with the severity of each said undesirable event and issuing refined fault tolerance requirements of said functional specification; e) producing replicates in said functional specification together with attached indicators of independence of said replicates, said indicators reflecting said refined fault tolerance requirements; f) defining a hardware structure for said system architecture, e.g. a series of electronic control units connected to each other by networks; g) mapping of said functional specification onto said hardware structure; and h) verifying automatically that said indicators of independence are preserved during mapping.

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